WHAT IS CLAIMED IS:

1. A method for applying electrical energy to tissue comprising:

positioning an active electrode adjacent to or in contact with tissue in the presence of electrically conductive fluid;

applying a sufficient high frequency voltage difference between the active electrode and a return electrode to generate a plasma adjacent to the active electrode while maintaining a low temperature in the active electrode; and

ablating at least a portion of the tissue.

2. The method of claim 1 wherein the applying step is carried out with active electrodes having low resistivity.

3. The method of claim 1 wherein the positioning step is carried out with electrodes comprising platinum.

4. The method of claim 3 wherein the platinum electrodes comprise between 5% and 15% iridium.

5. The method of claim 1 further comprising generating electric fields adjacent the active electrode, the electric fields having sufficient energy to generate the plasma.

6. The method of claim 5 wherein the generating step is carried out with active electrodes having low thermal conductivity.

7. The method of claim 1 further comprising vaporizing a portion of the electrically conductive fluid adjacent to the active electrode without substantially heating the active electrodes.

8. The method of claim 1 wherein the effecting ablation step is carried out by contacting the tissue with the plasma.

9. The method of claim 1 wherein the effecting ablation step is carried out by generating the plasma at a location spaced from the tissue.

10. The method of claim 1 wherein the plasma is generated at a location spaced a distance of about 0.05 to 5 mm from the tissue, the method further

comprising the step of accelerating ions from the plasma such that the ions contact the tissue.

11. The method of claim 1 further comprising positioning the return electrode within the electrically conductive fluid such that electrically conductive fluid forms a current flow path between the active and return electrodes.

12. 12. The method of claim 1 further comprising directing the electrically conductive fluid along a fluid path in contact with the active and return electrodes.

13. The method of claim 1 further comprising applying a sufficient high frequency voltage difference between the active and return electrodes to generate energy of at least 3.5 eV within or around the plasma.

14. The method of claim 1 further comprising applying a sufficient high frequency voltage difference between the active and return electrodes to generate energy of at least 4.0 eV within or around the plasma.

15. A method of creating a plasma in a body lumen comprising:
positioning a platinum active electrode within the body lumen;
delivering a conductive fluid over the platinum active electrode and a return electrode; and
generating a plasma adjacent to the platinum active electrode in a substantially non-thermal manner.

16. The method of claim 15 comprising maintaining a low temperature in the platinum active electrode.

17. The method of claim 15 wherein the generating step is carried out by ionizing the conductive fluid while transferring little heat between the active electrode and the conductive fluid.

18. A system for applying electrical energy to tissue at a target site comprising:
an electrosurgical instrument having a shaft with a proximal end, a distal end and one or more active low resistivity electrodes at the distal end of the shaft;

a return electrode; and

one or more connectors coupled to the active electrodes for connecting the active electrodes to a high frequency power supply.

19. 19. The system of claim 18 wherein the active low resistivity electrodes comprise platinum.

20. The system of claim 19 wherein the active low resistivity electrodes comprise between 5% and 15% of iridium.

21. The system of claim 18 comprising a plurality of electrically independent active electrodes.

22. The system of claim 18 comprising a plurality of non electrically independent active electrodes.

23. The system of claim 18 wherein the active electrodes and the return electrode are configured, upon the application of a sufficient high frequency voltage in the presence of electrically conductive fluid, to generate a plasma.

24. The system of claim 18 wherein the plasma is generated at a location spaced a distance of about 0.05 to 5 mm from the tissue, wherein the active electrode and the return electrode are configured, upon the application of a sufficient high frequency voltage in the presence of electrically conductive fluid, to accelerate ions from the plasma such that the ions contact the tissue, the ions having sufficient energy to ablate the contacted tissue.

25. The system of claim 18 further comprising a fluid delivery element having a distal opening coupled to the chamber for delivering electrically conductive fluid into the chamber around the active electrodes.

26. The system of claim 18 further comprising an aspiration lumen having distal opening coupled to the chamber for aspirating fluid from the chamber.

27. A method for applying electrical energy to tissue comprising:

positioning an active electrode adjacent to or in contact with tissue in the presence of electrically conductive fluid;

applying a sufficient high frequency voltage difference between the active electrode and a return electrode to vaporize a portion of the electrically conductive fluid such that the vaporized fluid and the active electrodes have a temperature below 100°C; and

effecting ablation of at least a portion of the tissue in contact with the vaporized fluid.

28. The method of claim 27 wherein the positioning step is carried out with platinum or platinum-iridium active electrodes.

29. The method of claim 27 further comprising applying a sufficient high frequency voltage difference between the active and return electrodes to generate energy of at least 3.5 eV within or around the vaporized fluid.

30. The method of claim 27 further comprising applying a sufficient high frequency voltage difference between the active and return electrodes to generate energy of at least 4.0 eV within or around the vaporized fluid.

31. The method of claim 27 further comprising applying a sufficient high frequency voltage difference between the active electrode and a return electrode to vaporize a portion of the electrically conductive fluid such that the vaporized fluid has a temperature below about 80°C.

32. The method of claim 32 comprising maintaining the active electrodes to a temperature below about 80°C.

33. A method for applying electrical energy to tissue comprising:

positioning an active electrode adjacent to or in contact with tissue in the presence of an electrically conductive fluid comprising between about 0.1% to 0.85% sodium chloride;

applying a sufficient high frequency voltage difference between the active electrode and a return electrode to vaporize a portion of the electrically conductive fluid;

maintaining a low temperature in the active electrodes and a surrounding tissue; and

effecting ablation of at least a portion of the tissue in contact with the vaporized fluid.

34. A method for applying electrical energy to tissue comprising:

positioning an active electrode near tissue in the presence of electrically conductive fluid;

applying a sufficient high frequency voltage difference between the active electrode and a return electrode to generate a plasma adjacent to the active electrode in a substantially non-thermal manner; and

effecting ablation of at least a portion of the tissue, while maintaining the active electrode at least 1.0 mm away from the tissue.

35. The method of claim 33 further comprising effecting ablation of at least a portion of the tissue, while maintaining the active electrode at least 2.0 mm away from the tissue.

36. A system for applying electrical energy to tissue at a target site comprising:

an electrosurgical instrument having a shaft with a proximal end, a distal end and one or more active platinum electrodes at the distal end of the shaft;

a return electrode; and

one or more connectors coupled to the active electrodes for connecting the active electrodes to a high frequency power supply.